

PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR U.S. LETTERS PATENT

ANIMAL IDENTIFICATION AND SECURITY SYSTEM

Inventor: Joseph B. Popp

ANIMAL IDENTIFICATION AND SECURITY SYSTEM

FIELD OF THE INVENTION

This invention relates generally to identification of and security for animals such as used in commercial businesses and is particularly directed to a system and method for assigning and recording an individual owner-animal identifying code for each system member as well as for each animal owned by each member. Each animal is permanently marked with this code which also identifies the type of animal and the country of origin of the animal. All of the owner-animal codes are stored in a computerized system connected to a global information network for worldwide dissemination of this information to facilitate the return of lost/stolen animals to their rightful owner and the tracking of individual animals for public health and safety reasons.

BACKGROUND OF THE INVENTION

A need exists for identifying and tracking domesticated animals such as used in commercial businesses such as those involving dairy and beef cattle, sheep, hogs, horses, goats, llamas, birds, etc. Marking personal property such as tools and machines essential to the operation of a business is common. However, there is currently no available system for identifying which animals belong to a particular owner and the location of that owner. This information would be helpful in the recovery of lost or stolen animals to return the missing animals to their rightful owner, as well as for identifying the owner or source of animals having a dangerous disease which may threaten humans or other animals. The need for this type of system as a high priority became clear with the recent "mad cow" disease threat in the beef industry. Information as to the source and history of a diseased animal could be vitally important in locating and identifying the origin of a dangerous and possibly economically devastating animal

disease, as well as for limiting exposure of humans and other animals which might be potentially affected by the disease. This important information is currently not available to any government or regulatory body for use in preventing or combating a dangerous animal epidemic. In addition, a centralized animal identification and security system would facilitate the return of lost/stolen animals to their rightful owner as well as the transfer of ownership of animals by using a single database which is easily updated and universally accessible to provide realtime animal ownership information.

The present invention addresses the aforementioned limitations of the prior art by providing an animal identification and security system and method which assigns an identifying code uniquely associated with each animal owner member as well as each individual animal owned by the member. This identification and security system and method is particularly adapted for use with commercial animals used in the conduct of a business such as cattle, hogs, sheep, horses, etc. The animal identification and security system provides for the centralized recording and storage of ownership information relating to animals as well as to the permanent marking of ownership indicia on each animal. Ownership indicia includes information relating to the state and county of residence or location of the animal owner and the owner's ranch or farm, as well as the particular type of animal, the specific animal in each owner's herd/flock, and the country of origin of each animal.

OBJECTS AND SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a system and method for marking animals in a manner which uniquely identifies the animal's owner and location.

It is another object of the present invention to mark animals such as used in commercial businesses in a manner which uniquely identifies the animal's owner using a marking code which identifies the state and county of residence or location of the owner, as well as the owner's ranch or farm within the designated county.

5 Yet another object of the present invention is to provide an animal marking code uniquely identifying the animal's owner as well as the owner's state and county of residence or location and the type of animal, which indicia is recorded and stored in a central location and is available on a global information network.

10 A still further object of the present invention is to provide an international registration and recording system for commercial-type animals which uniquely identifies the owner and location of the animal as well as the type of animal and its country of origin and makes this information available on a global information network.

15 The present invention contemplates a system and method for identifying an animal and the owner of the animal. The system makes use of first coded indicia comprising a first portion identifying a state of residence or location of the owner; a second portion identifying a county of residence or location of the owner; and a third portion uniquely identifying a farm or ranch on which the owner resides or is located within the owner's county. The system further employs second coded indicia uniquely identifying the animal, which comprises a fourth portion identifying the type of animal; a fifth portion identifying the individual animal within the owner's

20 herd or flock by number; and a sixth portion identifying the country of origin of the animal. The invention also includes a marker, or tag, containing the first and second coded indicia permanently attached to the animal; a memory storing the first and second coded indicia in a

central location for future reference; and a global information network coupled to the memory for making the first and second coded indicia available on a worldwide basis.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The appended claims set forth those novel features which characterize the invention. However, the invention itself, as well as further objects and advantages thereof, will best be understood by reference to the following detailed description of a preferred embodiment taken in conjunction with the accompanying drawings, where like reference characters identify like elements throughout the various figures, in which:

10 FIG. 1 is a simplified block diagram of an animal identification and security system in accordance with the principles of the present invention;

 FIG. 2 is a simplified flow chart illustrating the sequence of steps involved in carrying out the animal identification and security system and method of the present invention;

15 FIG. 3 is a side elevation view of a marker, or tag, containing indicia uniquely identifying an animal and the animal's owner which is adapted for permanent attachment to or implantation in an animal in accordance with one embodiment of the present invention;

 FIG. 4 is an end-on view of the animal marker shown in FIG. 3;

 FIG. 5 illustrates two different markers containing animal and animal owner indicia attached to a cow in accordance with different embodiments of the present invention; and

20 FIG. 6 illustrates another embodiment of a marker containing animal and animal owner indicia implanted in a cow in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, there is shown a simplified block diagram of an animal identification and security system 10 in accordance with the principles of the present invention.

The animal identification and security system 10 makes use of first coded indicia 12 identifying the owner of an animal to be registered in the system. The format and content of this first coded indicia 12 is described in detail below. The first coded indicia 12 associated with a respective animal owner is affixed to a tag or marker 16 for permanent attachment to the animal. Marker 16 may take on various forms, with a preferred embodiment for the marker described in detail below. The animal identification and security system 10 also makes use of second coded indicia 14 which uniquely identifies each animal. The second coded indicia 14 is also clearly and permanently affixed to the marker 16 for attachment to the animal.

The first coded indicia 12 and second coded indicia 14 are also input to a data processing system 18. Data processing system 18 includes, among other things, a memory 20 for storing the first and second coded indicia 12, 14 for the animals of each registered animal owner. Data processing system 18 may be conventional in design and operation and is preferably disposed at its central location. Memory 20 in which animal owner identification as well as coded indicia associated with each individual animal is stored is also of conventional design and operation. Memory 20 could typically be in the form of a random access memory (RAM) which allows for the entry and update of animal ownership data stored in the memory. Data processing system 18 is connected to a global information network 22, such as the Internet, to allow for universal accessing of the animal ownership and identification information in the form of the first and second coded indicia 12, 14 stored in the data processing system's memory 20. This permits

individuals as well as various organizations, such as regulatory agencies and healthcare organizations, around the world to check the animal owner and animal identification coded indicia stored in the data processing system's memory 20 to determine or verify ownership of a given animal as well as to determine the history of an animal. By storing this information and making it available on a universal basis, animal ownership determination and animal identification can be accomplished faster, more easily and more reliably than heretofore available.

Referring to FIG. 2, there is shown a simplified flow chart illustrating the series of steps involved in carrying out an animal identification and security system method in accordance with the principles of the present invention. At step 30, a request is received from a new client, or member, to mark an animal with coded indicia uniquely identifying the client as the owner of the animal. The first coded indicia 12 is comprised of a combination of alphanumeric characters identifying the state and county of residence or location of the owner. For example, the first two characters of the first coded indicia 12 are comprised of a two letter abbreviation of the state in which the owner resides or is located. More specifically, the first two characters of the first coded indicia 12 for an Indiana resident are "IN", while the first two characters for an Illinois resident are "IL". The next two characters in the first coded indicia 12 are in the form of a number representing the county of residence or location of the owner within a given state. All states make use of a numerical system for designating each county within that state. An example of a numerical listing employed by the state of Indiana for counties in that state is shown in Table I. For example, the first four characters in the first coded indicia 12 for a resident of Porter County in Indiana would be "IN64". Finally, a last set of characters in the first coded indicia 12

identifies the ranch or farm of the owner within the designated state and county. A "slash" separates the county designation number and the ranch or farm designation number. As each new owner is registered, a number is assigned to that owner's ranch or farm. Thus, a complete first coded indicia for a new owner residing in Porter County, Indiana might be represented as "IN64/201", where the number 201 indicates that the client resides or is located on ranch or farm number 201 within Porter County, Indiana.

TABLE I

1. Adams	32. Hendricks	63. Pike
2. Allen	33. Henry	64. Porter
3. Bartholomew	34. Howard	65. Posey
4. Benton	35. Huntington	66. Pulaski
5. Blackford	36. Jackson	67. Putnam
6. Boone	37. Jasper	68. Randolph
7. Brown	38. Jay	69. Ripley
8. Carroll	39. Jefferson	70. Rush
9. Cass	40. Jennings	71. St. Joseph
10. Clark	41. Johnson	72. Scott
11. Clay	42. Knox	73. Shelby
12. Clinton	43. Kosciusko	74. Spencer
13. Crawford	44. LaGrange	75. Starke
14. Daviess	45. Lake	76. Steuben
15. Dearborn	46. Laporte	77. Sullivan
16. Decatur	47. Lawrence	78. Switzerland
17. Dekalb	48. Madison	79. Tippecanoe
18. Delaware	49. Marion	80. Tipton
19. Dubois	50. Marshall	81. Union
20. Elkhart	51. Martin	82. Vanderburgh
21. Fayette	52. Miami	83. Vermillion
22. Floyd	53. Monroe	84. Vigo
23. Fountain	54. Montgomery	85. Wabash
24. Franklin	55. Morgan	86. Warren
25. Fulton	56. Newton	87. Warrick
26. Gibson	57. Noble	88. Washington
27. Grant	58. Ohio	89. Wayne
28. Greene	59. Orange	90. Wells
29. Hamilton	60. Owen	91. White
30. Hancock	61. Parke	92. Whitely
31. Harrison	62. Perry	

The second coded indicia 14 is also comprised of a combination of alphanumeric characters, with these latter alphanumeric characters identifying the type, or species, of the animal, the specific number of the animal within the owner's herd or flock, and the country of origin of the animal. Thus, the second coded indicia 14 may take the form of "BD175CA", where "BD" designates a bovine dairy animal, or cow, "175" designates the 175th animal in the owner's herd or flock, and "CA" designates Canada as the country of origin of the animal. Table II is a partial alphabetic listing of letters representing various types of animals contemplated for use in the animal identification and security system of the present invention. Similarly, Table III is a partial listing of country codes which could be used for identifying the country of origin of the animal. While the present invention is disclosed primarily for use with animals used in commercial businesses such as in agriculture, the inventive animal identification and security system may be used in identifying and tracking virtually any type of animal owned by man.

TABLE II

	<u>LETTER DESIGNATION</u>	<u>ANIMAL</u>
5	A	Alpacas
	BB	Bovine Beef (Cattle)
	BD	Bovine Dairy (Cows)
10	C	
	D	Donkeys
	E	Equine
	F	
	G	Geese
	H	Hogs
	I	
15	J	
	K	
	L	Llamas
	M	
	N	
20	O	Ostriches
	P	Poultry
	Q	
	R	Rabbits
	S	Sheep
25	T	Turkeys
	U	
	V	Vicunas
	W	
	X	
30	Y	Yaks
	Z	Zebras

TABLE III

	<u>COUNTRY</u>	<u>ABBREVIATION</u>
	Australia	AU
	Austria	AT
5	Belgium	BE
	Brazil	BR
	Canada	CA
	China	CN
	Colombia	CO
10	Costa Rica	CR
	Czech Republic	CZ
	Denmark	DK
	Finland	FI
	France	FR
15	Germany	DE
	Granada	GD
	Greece	GR
	Hungary	HU
	Indonesia	ID
20	Ireland	IE
	Israel	IL
	Japan	JP
	Korea, Republic of	KR
	Mexico	MX
25	Netherlands	NL
	New Zealand	NZ
	Russian Federation	RU
	South Africa	ZA
	Spain	ES
30	Sweden	SE
	Switzerland	CH
	Turkey	TR
	Ukraine	UA
	United Kingdom	GB

Referring to FIG. 2, there is shown a simplified flowchart illustrating the series of steps involved in carrying out an animal identification and security system and method in accordance with the principles of the present invention. At step 30, a request is received from a new client, or animal owner, to mark an animal for uniquely identifying the animal's owner, the residence or location of the animal's owner, the type and identity of the specific animal being marked, and the origin of the animal. The request received in step 30 may also come from an animal owner already registered in the system who would like to register additional animals in the system.

After a request is received from a new or existing client at step 30, the next step 32 involves a client signing a statement to the effect that the animal, or animals, to be registered and marked is the property of the client. This statement would preferably be in the form of an affidavit made under oath before a notary public or other person of authority. The next step 34 in the inventive process is to determine the client's state and county of residence or location and the client's ranch/farm identifying number. The client's state and county of residence or location is assigned an alphanumeric code as described above, while the client's ranch/farm may be assigned a numerical identifier in accordance with the order in which the client registers in the animal identification and security system. After the client's state and county of residence or location is determined as well as the client's ranch/farm identifier at step 34 the type, number in the owner's herd/flock, and country of origin of the animal to be marked is determined at step 36. The client indicia (first coded indicia) and the animal indicia (second coded indicia) are then stored in memory in a paired relationship for uniquely identifying the owner as well as the animal being marked at step 38. At step 40, the client indicia and animal indicia are permanently applied to the marker to be attached to the animal. The marker is then attached to the animal at

step 42 as described below and the client indicia and animal indicia assigned to that specific animal are made available on a global information network for worldwide dissemination.

Referring to FIG. 3, there is shown a side elevation view of one embodiment of a marker, or tag, 50 for use in the animal identification and security system of the present invention. An end-on view of the marker 50 is shown in FIG. 4. Marker 50 is preferably comprised of a high strength, lightweight material such as plastic and is on the order of 5/8" long and 1/4" wide at its maximum width. Marker 50 is preferably white and unitary in structure and includes a semi-spherical end member 52 having a semi-spherical distal end 52a, a rectangular member 56 disposed on a second, opposed end, and a cylindrical shaft 54 connecting the cylindrical end and the rectangular end. In a preferred embodiment, the semi-spherical end member 52 is 1/4" in length and 1/4" in diameter; the cylindrical shaft 54 is 1/8" in diameter and 1/4" long; and the rectangular member 56 is 1/4" on each lateral side and 1/8" thick. Disposed on each of the four (4) lateral faces of the rectangular member 52 is a first indicia line 58 and a second indicia line 60. As previously described, the first indicia line contains information uniquely identifying the animal's owner, while the second indicia line 60 contains information uniquely identifying the animal to which the marker 50 is attached. The first and second indicia lines 58 and 60 are permanently placed on the marker 50 by conventional means, such as by molding into the rectangular member 52, but may be changed if ownership of the animal changes. This indicia could be changed by imprinting or affixing new indicia on the marker 50 by any of various well known processes or techniques. A camera 71 is shown in FIG. 5 for photographing the indicia on a marker attached to each animal while the animals are eating or drinking water for making a permanent record of the owner's animals. Over time, the cartilaginous material in the cow's

muzzle 68 will overgrow and cover the marker's semi-spherical end member 52 and will be in tight fitting engagement with the marker's cylindrical shaft 54 for permanent attachment of the marker 50 to the animal.

Referring to FIG. 5, there is shown the manner in which a marker 70 in accordance with the present invention is permanently attached to an animal such as a cow 62. The marker 70 shown in FIG. 4 is of the same configuration and size as the marker shown in FIG. 3 and described in detail above. The semi-spherical end of marker 70 is inserted in the muzzle, or snout, 68 of the cow 62 intermediate its nostrils as shown in FIG. 4. Marker 70 is preferably attached to the cow when the cow is a young calf, which allows the cartilaginous material of the cow's muzzle to grow around the spherical end and cylindrical shaft portions of the marker 70 to permanently embed the marker in the cow. The size of the marker's rectangular end is such as to allow the owner and animal indicia disposed thereon to be easily read, with the marker not interfering with the eating, drinking or breathing of the cow. This location of the marker 70 on the cow's muzzle facilitates reading of the indicia on the marker's flat plate end when the cow is eating or drinking water. Marker 70 is inserted in an opening made in the cow's muzzle 68 by a sharp cutting instrument perhaps after administering a local anesthetic to the animal. The cutting instrument may preferably form an "X" shaped incision in the muzzle to facilitate insertion of semi-spherical end member 52 of the marker.

Also shown in FIG. 5 is another embodiment of a marker 66 for permanently affixing animal and animal owner information to an animal in accordance with the present invention. Marker 66 is also comprised of a high strength, rigid or semi-rigid material such as plastic and is permanently affixed to the cow's right ear 64 by conventional means such as staples or wire (not

shown for simplicity). The location of marker 66 on cow 62 also facilitates reading of the animal and animal owner indicia on the marker when the cow is eating or drinking water.

Referring to FIG. 6, there is shown another embodiment of a marker 76 (shown in dotted line form) for use with a cow 72. Marker 76 is implanted in the cow's muzzle 74 by means of an incision in the muzzle, which may be closed by conventional means such as stitches or staples.

Marker 76 is thus permanently installed in the cow 72. Marker 76 preferably includes an integrated circuit (IC) chip which is responsive to an RF inquiry signal from an animal identifier apparatus 78 which includes a transmitter for directing an RF inquiry signal to the marker 76 and a receiver for receiving a response emitted by the marker. The response provided to the animal identifier apparatus 78 includes the aforementioned animal and animal owner identifier information. By merely scanning the marker 76 with the animal identifier apparatus 78, the animal and the animal owner may be uniquely identified. The animal identifier apparatus 78 may be handheld, or may be mounted to a structure disposed adjacent to where the animals are located or adjacent to a path along which the animals travel. The IC chip marker 76 is preferably re-programmable after being implanted in an animal to accommodate for changes in animal ownership and identification of a new owner.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the relevant arts that changes and modifications may be made without departing from the invention in its broader aspects. Therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of the invention. The matter set forth in the foregoing description and accompanying drawings is offered by way of illustration only and not as a limitation. The actual scope of the invention is

intended to be defined in the following claims when viewed in their proper perspective based on the prior art.